International Center for Desert Architecture

office building

skylight system with holographic elements

. building

This building houses the International Center for Desert Architecture and Appropriate Technologies, and the National Center for Nuclear Safety and Radiation Control. It is a heavy masonry construction with small openings. The offices are entered from arcades which enclose a sequence of courtyards.

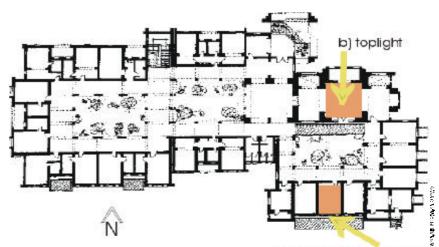
---------daylight strategy

Several windows and the skylight of the entrance hall are equipped holographic (HOE) light guiding redirect the sunlight without causing glare nor overheating problems. The general effort is to achieve a good daylight performance with a small opening index to prevent the building from overheating. This refers to the daylight strategy of the entrance hall. A photograph shows an interior view of an office space as well.

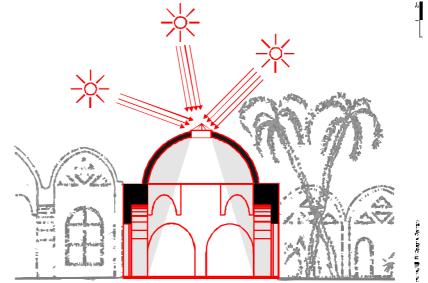
multi purpose hall

To provide homogenous daylight illumination for the entire room, a special toplight with HOE and additional acrylic reflectors was placed in the dome of the multi-purpose-hall.

Cairo, Egypt 30°N, 31°E sunny



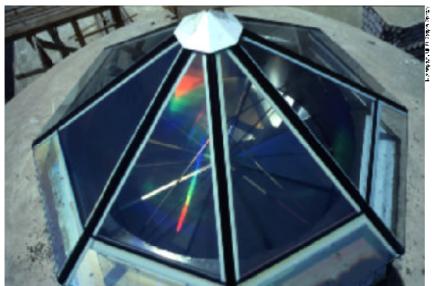
Floorplan of International Center for Desert Architecture and Appropriate Technologies. The highlighted entrance hall on the top has been equipped with a HOE-light guiding element, the room on the bottom has a light guiding window.



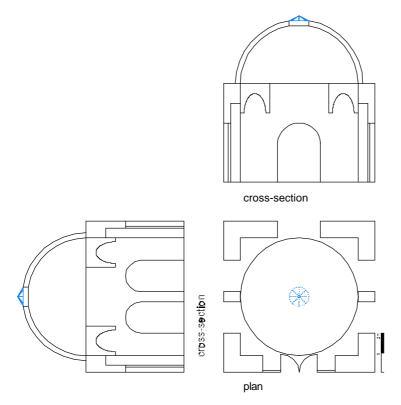
Cross-section showing the dome of the entrance hall with the lantern which is equipped with holographic elements to shade and to redirect sunlight.



View from below up to the barrel- vault in an office room with new window on the right side. The daylight is reflected to the ceiling by a HOE-device and distributed homogeneous and glarefree within the room.



Exterior view of the toplight above the entrance hall with HOE and shading wings.



building data		
size	2 500 m ²	
number of stories	2	
architect	Sherif Algohary, Cairo	
daylight consultant	ILB, FH Cologne	
year of completion	1996	
dome		
	unilateral, toplighting	
daylight strategy	unilateral, toplighting 6,0 m / 6,0 m / 8,0 m	
daylight strategy dimensions	6,0 m / 6,0 m / 8,0 m	
daylight strategy dimensions (depth/width/height) room area	6,0 m / 6,0 m / 8,0 m	

floor yellow ochre, 60%
wall yellow ochre, 60%
diffuser translucent glass
skylight hologram glass

Facade		sky lig ht	
	orientation	zenithal	
E	glazed area	1 m²	
C ST	opening index	0,03	
funct io n	daylighting	•	
	view outside	-	
	ventilation	-	
	operable	-	
	shading	•	
	redirection	•	
systems		sh adirg wing s difuser ho lo gram	
function systems	sun shading	• - •	
	glare protection	• - •	
	redirection	- • •	
Ĕ	inside	• • -	
	window pane	•	
	outside		
ocation	movable	•	
<u>8</u>	fixed	- • •	